

Protective Relay Permissive Communication

The Protective Relay Permissive Communications (PRPC) concept is studying ways to transition protective relay equipment to a limited state. In a limited state, only the most essential relay functions operate. This constrained state represents an additional depth of defense of cybersecurity, while maintaining important business functions.

One of the most important components of the electric power grid is the protective relay. When equipment fails or dangerous actions are initiated, relays protect power systems from damage. Protective relays provide protection against conditions on the power grid which could negatively effect the grid, damage equipment, or cause loss of life. But, sophisticated cyber threats can trick, alter, or stop a relay from performing its job.

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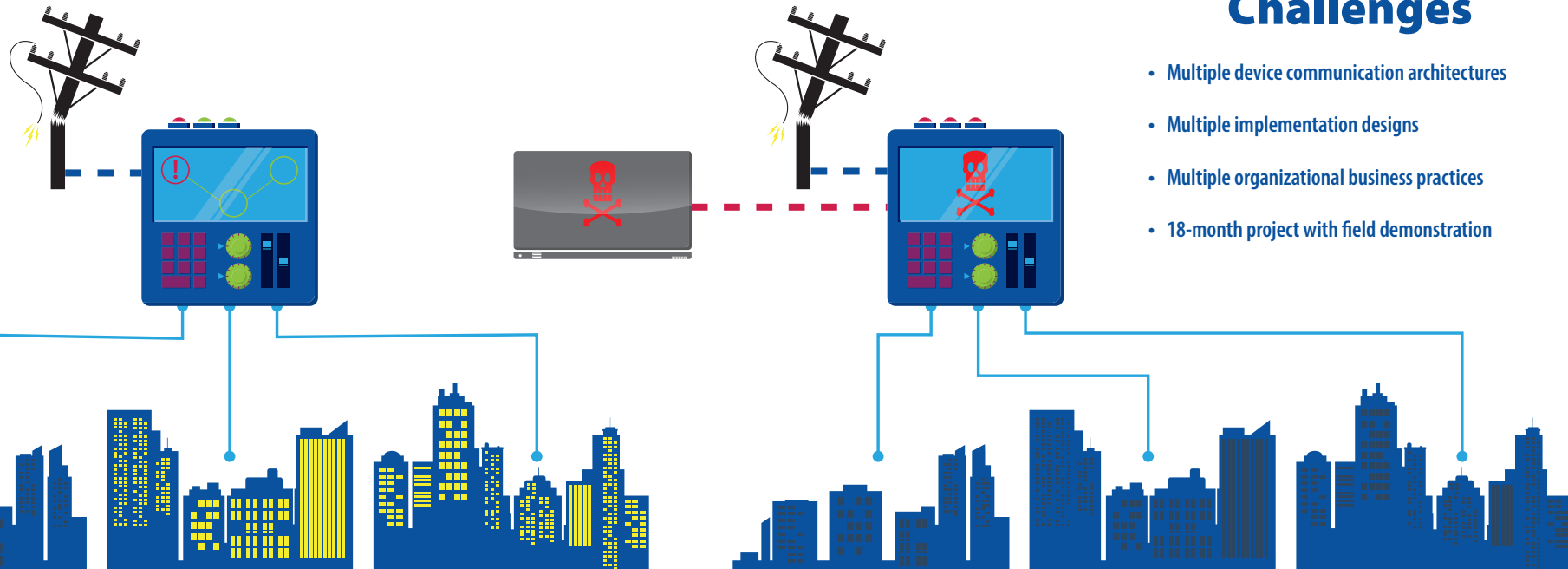
Researchers have proposed an 18-month project and full-scale demonstration at Idaho National Laboratory's Critical Infrastructure Test Range Complex to test their theory.

Desired Outcomes

- A field deployable solution for the Western Area Power Administration demonstrating a constrained communication state limiting business process and relay configuration and software/firmware updates functions
- A broad recommendation to industry on improving cybersecurity depth-of-defense for protective relays, and a simple technology device to support relay owners that has minimal impact to existing CIP requirements

Challenges

- Multiple device communication architectures
- Multiple implementation designs
- Multiple organizational business practices
- 18-month project with field demonstration



How it Works:

